

ATOMIC ENERGY

FIVE HUNDRED NINE FIFTH AVENUE NEW YORK 17, N.Y.

Dear Sir:

October 25th, 1949.

Vol. 2...No. 5

Major acceleration of U.S. atomic program was officially confirmed by President Truman in Washington last week. Thirty million dollars in Atomic Energy Commission budget reserve funds will be made immediately available to that agency, the President said, and a new financial program will be given to Congress next year by him to further expedite the Commission's work. (Amount is in addition to present AEC operating funds of over \$1,090,000,000.00.)...Meanwhile, legislation was rushed through the House and Senate relaxing curbs (AEN 7/19/49) placed some months ago on AEC spending powers. The curbs had forbidden the AEC to start unbudgeted construction over \$500,000.00 without approval of three Congressional Committees, and the Director of the Budget. Under the new amendment, the AEC may now initiate such projects, if it satisfies the Director of the Budget that they are necessary for national defense...While legislation was being enacted, AEC and Tennessee Valley Authority officials outlined their plans to the House Appropriations Committee. (A step-up in uranium-235 production at Oak Ridge might call on TVA for additional electrical capacity; TVA's new Johnsonville steam generating plant may provide this needed power. In addition, TVA is preparing preliminary plans for a new steam generating plant, with crews in the field examining prospective sites.)

Marking close cooperation with American industry by U.S. atomic officials, basic research information on uranium and other important metallurgical developments of the U.S. atomic program was presented at the thirty-first National Metal Congress and Exposition in Cleveland last week. Members of the four national technical societies participating in the Congress, were told of these developments, whose applications may lead to improved metallurgical quality control, lower cost production of metal products, increased uses for many rare metals and gases, and improved alloys.

First unit of the Knolls Atomic Power Laboratory, at West Milton, New York, is going forward with the recent award to Thomson Construction Company, of Albany, of a contract for various buildings and utilities at this project. The new facilities, a \$560,311.00 job, will pave way for the main task at this site: erection of an intermediate speed range nuclear reactor--a pilot version of an atomic central station power plant. Target date, 1952; cost, about \$18 million.

Giving the AEC credit for taking the U.S. atomic program, which was "falling apart at the seams, and reshaping it into a formidable deterrent against aggression", the majority report of the Joint Congressional Committee on Atomic Energy was released last week in Washington. (Republican committeemen had previously opposed this report, AEN 10/11/49, insisted it was "whitewash".) By votes of 9 Democrats, versus 6 Republicans, the AEC was absolved of the "incredible mismanagement" charge instigated against it by Senator Hickenlooper. The report found that three of the Senator's most serious allegations were without foundation.

AT THE ATOMIC CITIES OF THE UNITED STATES...

RICHLAND, Washington - Eighty million dollars in new construction here, previously scheduled for next Spring, may get under way "soon after the first of the year", Carroll L. Wilson, AEC general manager, declared at Hanford Plutonium Works during a recent visit there. He said that quite possibly additional facilities, besides the announced Spring program (which totals \$160 million), will come to this plutonium manufacturing center. This would be, he stated, in line with the reassessment of the U.S. atomic program which was undertaken when it became known an atomic explosion had occurred in the Soviet Union. (See page one, this LETTER: President confirms major acceleration U.S. atomic program.)

Plaints of Richland businessmen were aired in a resolution this group's committee submitted at a recent meeting of Richland's Community Council. The committee held that AEC restrictions and conditions have discouraged prospective business people; that present top-heavy book-keeping systems eat up profits; that no governmental agency (AEC), nor industrial company (General Electric, operating both Hanford Works, and the town of Richland), should be permitted to decide who may do business in Richland. Also objected to by the businessmen were percentage leases (they want negotiated fixed-rental rates), and the requirement that they abide by rules and regulations which may be formulated in the future.

LOS ALAMOS, New Mexico - Uninterrupted operation of the scientific laboratories here is now assured with completion nearing of a new 95-mile, 12-inch, natural gas pipeline from wells in the San Juan field, in northern New Mexico, to Los Alamos. (Under severe weather conditions, Los Alamos, at the tail-end of the present 208-mile system had found it necessary to curtail operations due to inadequate gas supplies.) Black & Veatch, Kansas City, did engineering and design work on the new pipeline; Haddock Engineers, Ltd., Los Angeles, constructed first 51-mile section; Morrison Construction Co., Austin, Tex., are in final stages of last section...For miscellaneous mechanical rehabilitation here, the AEC has issued bid inv. 291-50-12; bids due Nov. 3rd...To construct a \$200,000.00 to \$400,000.00 (est.) sewage treatment plant, bid inv. 291-50-19 has been issued by the AEC; due date, about Nov. 21st.

Sandia Base, Albuquerque, New Mexico - Formal transfer of Sandia Laboratory here, to American Telephone & Telegraph Co., from present operator, University of California, takes place Nov. 1st. Culmination of negotiations, initiated last Summer (AEN 7/19/49), now makes Sandia Corporation, newly-formed subsidiary of Western Electric Co., (AT&T-owned) first non-academic contractor at this laboratory where non-nuclear atomic bomb parts are received from manufacturers, given specification checks, and assembled...Stage VI, of the water supply system for this Base, consisting of two 1,000,000-gal., and one 500,000 gal. steel surface water reservoirs, has been opened to bidders by U.S. Corps of Engineers, Albuquerque, N.M., under invitation Eng. 29-005-50-19; due date is about Nov. 1st.

OAK RIDGE, Tennessee - Participating in labor and personnel relations discussions here last week were government and industrial representatives of U.S. atomic installations and contractors' organizations. William H. Davis, chairman, Atomic Energy Labor Relations Panel, was principal speaker at the two day meeting, which was devoted to personnel problems peculiar to atomic energy work...Recognition of dangers inherent in work with radioactive materials, and proper heed of safety precautions, has won the National Laboratory here first place in its division in the National Safety Council's annual contest. Thirty-nine chemical companies and laboratories competed in the contest's three divisions...A report of the discovery and measurement of gamma rays accompanying the alpha decay of uranium-235 has been made by R.L. Macklin, of the K-25 laboratories here. (K-25 plant produces U-235 by gaseous diffusion process.)

INSTRUMENTS AND PRODUCTS...for nuclear work...

EXHIBIT - The First Annual Nucleonics Manufacturers' Exhibit will be held Oct. 31st, through Nov. 2nd, at the Hotel Commodore, New York, simultaneously with the joint Institute of Radio Engineers-American Institute of Electrical Engineers conference on Electronic Instrumentation in Nucleonics and Medicine. The first day of the program will be devoted to the non-nucleonic phases of electronics in medicine; the second day concerns nucleonics in medicine; and the last day's program covers nucleonic development in industry and government laboratories. This will also be the first official meeting of the Professional Group on Nuclear Science of the IRE.

Nucleonic manufacturers exhibiting include Atomic Instrument Company, Boston; Berkeley Scientific Co., Richmond, Calif.; Cambridge Instrument Co., New York; Canadian Marconi Co., Montreal; Kelley-Koett Man. Co., Covington, Ky.; National Technical Laboratories, S. Pasadena, Calif.; Nuclear Instrument & Chemical Corp., Chicago, Ill.; The Nucleonic Corporation of America, Brooklyn; Radioactive Products, Inc., Detroit; Streeter-Amet Co., Chicago; Tracerlab, Inc., Boston; and Victoreen Instrument Co., Cleveland.

DEMONSTRATION - An industrial thickness gauge, using beta radiation from strontium-90, and a radiation detector to measure weight per unit area, was demonstrated by General Electric at the convention of the American Association of Textile Chemists and Colorists, recently held in Atlantic City.

LATEX LINER - British atomic energy establishments are now using "Semtex" brand latex cement as a resistant liner for tanks and piping work for radioactive material, according to the manufacturer of this product.

FROM THE MANUFACTURERS - RCL fusion seal mica window counter. The thin mica window in this counter is rigidly sealed by a direct mica-to-glass fusion, avoiding leakage possibilities inherent in counters using cements or organic binders. Available with mica window thicknesses of 3 to 4 mg. per sq. cm.-- Radiation Counter Laboratories, Chicago, Ill.

New binary scaler, model 101-M; vacuum tube diode coupling; resolving time, under 5 microseconds. Neon interpolation system; 8 or 64 scaling factors; precise discriminator; self contained power supply. -- Atomic Instrument Co., Boston 14, Mass.

RCA counter-timer-scaler, model WF-99C. As a scaler, used in conjunction with a suitable nucleonic radiation detector and pulse shaping amplifier; either random or regular rates, up to one million per second. Total count read directly; scales to one million. --Radio Corp of America, Camden, N.J.

ATOMIC PATENT DIGEST...latest U.S. & British applications & grants

Placing radioactive markers in boreholes. Patent applications nos. 23505,6, and 7, made to British Patent Office, Sept. 28th, 1949, by Gulf Research and Development Co. (In U.S.A., January 10th, 1949.)

Geiger-Muller counters. Complete specifications accepted by British Patent Office, Sept. 28th, 1949. Pat. No. 629,317, to Metropolitan-Vickers Electrical Co., Ltd., J. Craggs, and A. Jaffee.

Radiation exposure meter (film badge). A film sensitive to X-ray and gamma radiation is contained in a holder, with a filter (possessing special absorption characteristics) covering an area of the film. U.S. Pat. No. 2,483,991, issued Oct. 4th, 1949, to E.O. Wollan, L.A. Pardue, and N. Goldstein, and assigned to the United States of America (USAEC).

Method of locating the level of mud films on the walls of a borehole, by bombarding a portion of the wall of the borehole with neutrons. (Before drilling, aluminum is added to the drilling mud to produce, under bombardment with neutrons, an identifiable gamma ray intensity higher than that of the formations to be penetrated.) U.S. Pat. No. 2,484,422, issued Oct. 11th, 1949, and assigned to Gulf Research and Development Co.

RADIOISOTOPES...investigations and notes...

Because of the promise held by radioactive cobalt (cobalt-60) for therapeutic purposes, Nickson, Lamerton, and Mayneord, working at the Royal Cancer Hospital in London (England), have made a preliminary investigation of the behavior of this isotope when implanted subcutaneously. Using mature rats and metallic cobalt, the material was implanted through a small slit in the loose skin of the right side of the rat, and deposited dorsally a short distance from the incision. The animals were sacrificed after periods varying from 4 to 15 days. The investigators found that bare metallic cobalt-60 can be absorbed from a subcutaneous site, and may be found in the adjacent subcutaneous tissue, in the liver, kidneys, remaining carcass, and in the excreta. They advise that neither cobalt-60 nor its alloys be used parenterally without prior investigation of possible absorption.

Since carbon-14 has a half life of approximately 5,000 years, studies were made of the hazards involved in its use, through possible retention. Skipper, White, and Bryan, at the Southern Research Institute, Birmingham, Ala., investigated this retention, injecting mice with sodium bicarbonate labelled with carbon-14. Measuring the rate of expiration of carbon dioxide, C-14 labelled, from the mice, they found the biological half-life of bicarbonate carbon at time of injection to be less than ten minutes. Greater than 90% of the total activity injected was lost through the respiratory route in one hour. At 24 hours after injection, most of the C-14 in the blood was fixed in a non-bicarbonate form. No profound localization of C-14 was found in tissues and organs, while the specific activity of whole, long bones paralleled that of the blood up to 12 weeks.

Use of radioactive nitrogen to study the aging process has been investigated by Dr. J. H. Lawrence, Director of the Donner Laboratory, University of California. He reports that with the radioactive nitrogen it is possible to measure the rate at which normal people of various ages are able to eliminate this gas after saturation. Different age groups have different elimination times, he notes; the 15 year old group rapidly eliminates nitrogen, while older people take up to five hours for the same degree of elimination. With the rate of gas exchange in the body influenced by the blood-vessel supply of the tissues, these radioactive nitrogen measurements may lead, Dr. Lawrence suggests, to new theories about old age, especially as it affects the blood vessels.

RADIATION...case studies

Effective treatment of radiation sickness in humans with Dramamine, the anti-histaminic, was recently reported by Drs. Beeler, Tillisch, and Popp, of the Mayo Clinic. In 65 of 82 patients given Dramamine before and after X-ray or radium treatment, good to excellent relief of nausea, vomiting, and other symptoms was observed. Intravenous injections of vitamin B-6, or pyridoxine, in combination with the Dramamine, gave better results in some cases, particularly when the X-ray treatment was given over the upper part of the stomach region.

Using sex hormones, and cortisone, Drs. J.B. and R.M. Graham, of the University of Oregon Medical School, were able to increase resistance of animals to radiation. Their report, made last week at the annual clinical congress of the American College of Surgeons, in Chicago, stated they had found that radiation sensitivity may be substantially changed at will in either direction in animals.

At Argonne National Laboratory, in Chicago, studies of bats subjected to X-radiation have shown that although their blood seems to be less viscous immediately after such exposure, it soon begins to thicken and remains so until death. The increased viscosity was due to leakage of large amounts of fluid from the vessels. The study suggested, in addition, that the bat is highly resistant to X-radiation, as large dosages were required to shorten life and produce these effects. The manner in which these findings might contribute to knowledge of circulatory failure is being studied.

RAW MATERIALS...for nuclear work...

UNITED STATES...Boulder, Montana - Radioactive minerals have been recently reported at the Free Enterprise mining claims here; property is under option to Elkhorn Mining Company, who have not as yet reported assay results.

...Casper, Wyoming - According to Dr. J.L. Masek, of Casper, a radioactive mineral find made by him in central Wyoming has shown 0.66% uranium oxide equivalent under Government analysis. He said further exploration by him had indicated a better grade ore.

...Morgantown, Pa. - A 1500-acre tract--the former farm of Fred Trunk, at Morgantown--is reportedly being investigated for radioactive minerals. According to mining operators in the Reading area, Geiger counter surveys indicated radioactive showings within a four-mile radius of Morgantown.

...Roslyn, Wash. - Radioactive minerals from the Big Dome Mining Company deposits in northern Kittitas county, have shown uranium oxide content, Homer A. King, company executive recently stated. King said a report from the laboratory of the U.S. Bureau of Mines in Salt Lake City indicated that the minerals have commercial possibilities. The Bureau described the find as one of two, of thousands they had tested, that definitely contained uranium oxide.

...Marysville, Utah - Radioactive ores here now being worked for their uranium content are mainly autunite. Both U.S. Vanadium Corporation, and Chief Consolidated have been active, with the former interested in the Seegmiller lease from which it has already shipped ores to Naturita, Colorado, for mill testing.

CANADA - Molybdenum Corporation of America has taken a working option on the Mattawa district uranium claims of Bobjo Mines, Ltd., according to officials of the latter company. The claims adjoin the holdings of Steve Bond, which were optioned earlier this year by Molybdenum Corporation, and where work is now underway...On the Ace Lake Groups of Athona, Greenlee, and Goldcrest claims at Goldfields, Saskatchewan, J.J. Byrne, Athona president, has reported that the season's work has resulted in pitchblende being found at 10 locations. Mr. Byrne said that uranium oxide occurs in three principal zones in commercial quantities, in widths up to 19.1 feet; he noted that while the most important showings are on the Athona claims, indications are that all the showings are closely related.

INDIA - It is now stated that a plant will be in operation within a year by the two French firms, the Banque Marocaine de Credit, and the Societe des Produits des Terres Rares, which have been given a fifteen year contract by the Government of India to work the monazite sands on the coast of Travancore State, in South India (AEN 7/5/49). It is expected that 1,500 tons of monazite sands will be treated annually. Thorium, cerium and other rare earths will be produced for internal consumption, and for such export as may be considered in the national interest. (The Atomic Energy Act, 1948, of India, declares thorium a "prescribed substance"; as such, export is reserved to government discretion.)

BRITISH EAST AFRICA - The United Kingdom has advised the Colonial Geological Survey Department that it wishes to purchase all available supplies of beryllium. Accordingly, at this instigation, production has been started in Uganda and Tanganyika...From the Kenya Mines Department, a report has been received of increasing prospecting activity for uranium there.

Sincerely,

The Staff
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October 25th, 1949.